TEST

Skin or nail culture

A skin or nail culture checks a sample for fungi or bacteria that may be causing an infection.

WHAT IT MEASURES
Growth of infection-causing fungi or bacteria from a sample

SAMPLE
Skin scrapings, nail clippings, debris, or a swab

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually 5 to 15 minutes

RESULTS IN
Several days to four weeks, varying by laboratory

USED FOR
Diagnosing a suspected skin or nail infection

MAIN LIMITATION
Poor sampling or prior treatment can cause false negatives

Overview

A skin or nail culture is a laboratory test used to look for organisms that may be causing an infection. Most cultures from scaly skin or thickened nails look for fungi. Samples from an open sore, blister, or area containing pus may also be tested for bacteria.

For a fungal culture, the laboratory places skin scrapings, nail clippings, or material from beneath a nail onto a substance that supports fungal growth. Staff then watch for growth and may identify the type of fungus.

Fungi often grow slowly, so results may take several weeks. Bacterial cultures are usually faster.

This test does not use a universal numerical reference range. Results are reported in terms such as "no growth" or by naming the organism found. Interpretation varies with the laboratory method, medicines, sample site, age, sex, pregnancy status, and your wider clinical situation.

Why the test is ordered

Several conditions can look like a skin or nail infection. For example, psoriasis, eczema, repeated nail injury, and age-related nail changes can resemble a fungal infection.

A culture may help determine whether an infection is present and which organism may be responsible. This can guide the choice of treatment, particularly before a long course of antifungal medicine.

The test may be ordered to:

A culture may also be used when the appearance is unusual or when identifying the exact fungus could affect treatment.

- Investigate a thickened, discoloured, brittle, or lifting nail
- Check a persistent scaly, cracked, or itchy rash
- Identify an organism when previous treatment has not worked
- Distinguish fungal infection from another skin or nail condition
- Test drainage, pus, or an open area for bacteria

Who should have the test

You may be offered this test if your symptoms and examination suggest a fungal or bacterial infection but the cause is uncertain.

Testing can be especially useful before oral antifungal treatment for a suspected nail infection. Oral treatment may last for weeks or months, and abnormal nails are not always caused by fungi.

A clinician may also be more likely to request testing if an infection keeps returning, covers a large area, has not improved with treatment, or occurs alongside diabetes, poor circulation, or a weakened immune system.

Not every mild, typical skin infection needs a culture. Sometimes the appearance and location provide enough information to begin treatment. The decision depends on the affected area, severity, previous treatment, and whether knowing the organism would change care.

How to prepare

You do not need to fast. You can eat, drink coffee, take routine exercise, and use your usual medicines unless you receive different instructions.

Tell the person arranging the test about antifungal like fluconazole or terbinafine creams, nail treatments, antibiotics like amoxicillin or doxycycline , or antiseptics you have recently used. These can reduce the number of living organisms and make a culture negative even when an infection is present. Do not stop a prescribed medicine unless you are told to do so.

If possible, avoid trimming, filing, or scraping the affected nail immediately before the appointment. The collector needs enough abnormal nail and debris for testing.

You may be asked to remove nail polish or artificial nails. Avoid applying cream, powder, or antiseptic to the area on the day of collection unless your testing service advises otherwise.

What happens during the test

The collection method depends on the affected area.

For a scaly rash, the collector usually scrapes small flakes from the edge of the abnormal skin. This outer edge is often where actively growing fungus is easiest to find.

For a nail problem, they may cut off part of the abnormal nail and collect crumbly material from beneath it. A deeper sample from the affected area is generally more useful than a clipping from the nail tip.

If there is fluid, pus, or an open sore, the collector may rub a sterile swab over the area. This is often used when a bacterial infection is being considered.

Collection usually takes 5 to 15 minutes. It may feel like pressure or light scraping, but an anaesthetic is rarely needed. The sample is placed in a sterile container and sent to the laboratory.

The laboratory may also examine part of the sample under a microscope. Microscopy can provide an earlier clue while the culture is still growing.

Understanding your results

A positive culture means an organism grew from the sample. The report may name a dermatophyte, which is a fungus that commonly infects skin and nails. It may instead identify yeast, another type of mould, or bacteria.

Finding an organism does not always prove that it caused the skin or nail change. Some organisms can live harmlessly on the body or enter the sample during collection. This is particularly important when a nail culture grows a mould that does not usually cause nail infection. Repeat testing or another type of test may be needed.

A negative result means no organism grew under the laboratory conditions used. It does not completely rule out infection. There may have been too little affected material, the organism may not have survived transport, or recent treatment may have stopped it from growing.

Microscopy may be reported separately. Fungal structures seen under a microscope support fungal infection, but microscopy may not identify the exact species.

What affects the results

The quality and location of the sample are major influences. A small surface sample may miss an infection deeper under a nail or near the active edge of a rash.

Results may also be affected by:

A recent course of treatment is especially important because culture requires living organisms. A test that looks for fungal material or DNA may remain positive when culture does not.

Age, sex, and pregnancy usually do not determine whether an organism grows. They can, however, affect how the result is interpreted and which treatments are appropriate. Other health conditions and medicines also matter when deciding what to do with a result.

- Recent antifungal medicine, antibiotics, or antiseptics
- Trimming or filing away the most abnormal nail before collection
- Collecting from inactive or treated skin rather than the advancing edge
- Delays, moisture, or unsuitable conditions during sample transport
- Too little skin, nail, or debris reaching the laboratory
- Contamination by organisms from nearby skin or the environment
- Fungi that grow slowly or do not grow well in standard culture conditions

Accuracy and limitations

Culture can identify a living fungus and often determine its type, but it can miss genuine infections. False-negative results are more likely after treatment, with a small or poorly located sample, or when the organism is difficult to grow.

The test can also give a misleading positive result. Environmental moulds and organisms living harmlessly on the skin can contaminate a sample. A positive result is more convincing when it matches the appearance and location of the problem or is found again in a repeat sample.

Direct microscopy is faster than culture, but it can miss small amounts of fungus and often

cannot name the species. Examining a stained nail clipping under a microscope may be useful when nail culture is negative but suspicion remains.

Molecular tests, often called PCR tests, look for fungal genetic material. They may provide faster results and detect fungi that fail to grow, but availability varies. They can also detect material from organisms that are no longer alive.

No single method answers every question. A repeat culture, microscopy, stained nail clipping, bacterial culture, or occasionally a skin biopsy may be more suitable if the first result does not fit the clinical picture.

Risks and complications

Skin scraping or nail clipping may cause brief discomfort, minor tenderness, or a tiny amount of bleeding. Significant complications are uncommon, and you can usually return to normal activities immediately.

What happens next

Results are usually reviewed during routine follow-up. If an organism is found, the next step depends on its type, the affected area, your symptoms, previous treatment, and other health factors.

A negative culture may lead to observation, repeat sampling, another laboratory method, or assessment for a non-infectious condition. Do not start, stop, or share prescription antifungal or antibiotic treatment based only on the laboratory wording.

Seek urgent medical care rather than waiting for a routine culture result if redness or swelling is spreading quickly, pain is becoming severe, you have a fever, or the affected area produces substantial pus. Prompt assessment is also important for a new foot wound if you have diabetes, poor circulation, or reduced immunity.

Emergency complications from collecting the sample are not expected. Call emergency services if you develop confusion, severe difficulty breathing, or another immediately life-threatening symptom.

Common questions

Can I drink coffee before a skin or nail culture?

Yes. Food and drinks, including coffee, do not affect the sample, and fasting is not needed.

Does the time of day matter?

Usually not. The sample can generally be collected at any convenient appointment time.

Can I exercise beforehand?

Yes. Exercise does not usually affect the culture. If activity makes the area very sweaty or dirty, gently clean and dry it without applying antiseptic unless instructed otherwise.

Should I remove nail polish first?

Often, yes. Polish, gel, or artificial nails can make it harder to reach the abnormal nail. Follow the collection service's instructions, and avoid damaging the nail while removing them.

Can I use antifungal cream before the test?

Recent antifungal treatment can cause a false-negative culture. Tell the testing service what you have used and when, but do not stop prescribed treatment without instructions.

Why do fungal culture results take so long?

Many fungi grow slowly. The laboratory may need several weeks to detect growth and identify the organism, while bacterial results are often available sooner.

Sources

- MedlinePlus Medical Test: Fungal Culture Test , US National Library of Medicine
- Laboratory Tests for Fungal Infection , DermNet New Zealand
- Investigation of Dermatological Specimens for Superficial Mycoses, UK Standards for Microbiology Investigations B 39 , UK Health Security Agency
- Clinical Overview of Ringworm , US Centers for Disease Control and Prevention
- Onychomycosis: Rapid Evidence Review , American Family Physician , 2021